HENRYS LAKE FISH HATCHERY

ANNUAL REPORT

JANUARY 1, 1991 - DECEMBER 31, 1991

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INTRODUCTION

Henrys Lake Hatchery is a license-funded resident station located in the northern Island Park area of Fremont County in east-central Idaho. The hatchery was established in 1924 as an egg-taking facility to off-set the potential loss of spawning habitat due to the construction of a dam at the lake outlet in 1922 (IDFG 1924).

The hatchery continues to function as an egg-taking station and ships eyed eggs of cutthroat trout Oncorhynchus clarki, rainbow trout Oncorhynchus mykiss x cutthroat hybrids, and brook trout Salvelinus fontinalis to statewide hatcheries. Egg production for the year exceeded 4,300,000 eyed eggs.

The current hatchery building was completed in 1949 and remodeled in 1989 (Figure 1). The building contains 10 double stacks of Heath incubator trays. Hatchery water is supplied **via** gravity flow from Sherwood Spring at 2 cfs for domestic and egg incubation use. Unused water flows through a small viewing pond into Hatchery Creek, and then through a spawning facility and into the lake through a 150-foot fish ladder.

The hatchery is staffed with 1 permanent hatchery superintendent and 11 months of allocated temporary time (8 months bio-aide and 3 months laborer).

HATCHERY IMPROVEMENTS

Hatchery improvements during 1991 consisted of installing electrical service to facilitate lake aeration devices from the lakeside cabin. A new electric range, new carpet and linoleum, and new windows were installed into the residence. The lakeside cabin received new windows and carpeting. The garage door was replaced on the hatchery garage. A metal storage shed was constructed behind the hatchery to store aeration equipment. A new boat and motor was purchased, as well as a new 3/4-ton four wheel drive pick-up truck. A snowplow was installed on the 1986 1/2-ton four wheel drive pick-up. Future improvements should include upgrading the hatchery sewer system, relocation of domestic water lines below frost line and resurfacing the hatchery driveway and sidewalk.

FISH HEALTH

Broodstock disease inspections were conducted on brood year 1991 cutthroat and brook trout (Table 1). Cutthroat broodstock were lost in great numbers prior to spawning due to low oxygen concentrations in the lake. Skin ulcerations and fungal infections were apparent on many fish entering the ladder and were considered to be indications of oxygen stress. Three of 16 cutthroat tested were positive for motile aeromonad septicemia, 7 of 16 were positive for bacterial

coldwater disease. Three of 55 brook trout tested were positive under the ELISA testing for bacterial kidney disease at low levels. All other pathology examinations were negative.

FISH SPAWNING

The fish ladder was placed in operation on March 1, 1991, and spawning began March 5. In 1990, the run was made up of 23,403 cutthroat and 3,569 hybrids. The 1991 run consisted of 6,289 cutthroat and 435 hybrid trout, a decrease of 73% and 88%, respectively, in the 1991 run. Fish ascended the hatchery ladder during March and April (Figures 2 and 3). Average total length for male and female cutthroat was 470 mm (Figure 4). Hybrid males averaged 590 mm while females averaged 570 mm (Figure 5). This decrease was probably due to the occurrence of a winter kill. Thick ice and deep snow covering the lake in fall and winter resulted in decomposition of high plant biomass accrued during spring and summer. This, combined with low tributary flow into the lake due to drought conditions, resulted in low dissolved oxygen concentration during February and March.

Cutthroat eggs totaled 3,085,900 from 1,402 females for an average fecundity of 2,200 eggs per female. Green eggs yielded 2,196,430 eyed eggs for an eye-up survival of 71% (Table 2).

A total of 2,279,200 cutthroat x rainbow eggs were collected from 1,140 females for an average fecundity of 2,000 eggs per female. Eyed hybrid eggs totaled 1,752,848 resulting in an eye-up survival of 77%.

Brook trout eggs totaled 428,190 taken from 211 females for an average fecundity of 2,029 eggs per female. Eyed eggs totaling 370,590 were obtained for an eye-up survival of 86.5% (Table 3). Brook trout males averaged 321.85 mm total length, while female total length averaged 414.66 mm (Figure 6).

PUBLIC RELATIONS

During 1991, the Idaho Falls Post Register newspaper printed an article on the Henrys Lake winter kill and hatchery efforts to create refuge for the fish with aerators. Off-station talks included addresses to the Henrys Lake Foundation and the Yellowstone District of the Soil Conservation Service concerning riparian fencing, stream habitat improvement, and angling pressure trends. Hatchery visitors numbered around 1,500. Tours were conducted around riparian fencing projects for conservation groups. Angler interviews were conducted throughout the summer and early fall in an effort to collect creel data.

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SPECIAL PROJECTS

During March and April of 1991, emergency measures were undertaken at several locations around the lake to provide refuge for fish affected by low dissolved oxygen availability. Hatchery personnel from Ashton, Grace, American Falls, Mackay, Clearwater, and Sawtooth hatcheries assisted in opening lake ice and installing aeration equipment. Approximately 9,000 moribund cutthroat and hybrids were removed from the lake adjacent to the hatchery.

The hatchery assisted in maintenance of riparian fencing and irrigation diversion screens and delineation of wetland enhancement projects on private and public lands adjacent to the lake. In December 1991, hatchery personnel became involved in a cooperative water quality study funded by the Department of Environmental Quality. The study will assess nutrient loading and source points of contaminants around the lake, as well as seasonal changes in limnological parameters within the lake. The study will be conducted through 1993.

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ACKNOWLEDGEMENTS

Henrys Lake Hatchery personnel wish to thank all of the individuals from surrounding hatcheries and regional personnel who assisted during the winterkill of 1991. Special thanks to the Henrys Lake Foundation for support in materials and manpower in projects to benefit the lake and its users.

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LITERATURE CITED

Idaho Department of Fish and Game. 1924. Fish and Game Warden. 10th Biennial Report. 10:113-114.

Table 1. Pathology test results, Henrys Lake Hatchery, 1991.
Legend:

Species (1991)	Date	VH	VP	VE	BK	BF	BR	BC	PX	PW	PC	PI
cutthroat (C3)	3-5	-	-	-	-			+			-	
cutthroat (C3)	3-11	-	-		-							
cutthroat (C3)	4-4	-	-									
brook trout	11-6	-	-		+*							

VH = IHNV, infectious hematopoietic necrosis virus
VP = IPNV, infectious pancreatic necrosis virus
VE = EIBS, erythrocytic inclusion body syndrome virus
BK = bacterial kidney disease agent, Renibacterium salmoninarum
BF = bacterial furunculosis, Aeromonas salmonicida BR = enteric red mouth bacterium, Yersinia ruckeri BC = bacterial cold water disease, Cytophaga psychrophila or Flexibacter psychrophilus
PX = PKX, agent of PKD, proliferative kidney disease
PW = whirling disease agent, Myxobolus (Myxosoma) cerebralis
PC = Ceratomyxa shasta, agent of ceratomyxosis
PI = Infestation by Ichthyophthirius multifilis

* ELISA = enzyme-linked immunosorbent assay, 3/55 low level positive.

+ = positive
- = negative
blank = not tested for

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Table 2. Egg summary, Henrys Lake Hatchery, 1991.

Species	Green eggs	Eyed	Percent eye-up
Cutthroat	3,085,900	2,196,430	71%
Hybrid trout	2,279,200	1,752,848	77%
Brook trout	428,190	370,590	86.5%
TOTAL	5,793,290	4,319,868	74.6%

Table 3. Eyed eggs shipped from Henrys Lake Hatchery, 1991.

Species	Eyed eggs shipped	Receiving Hatchery
Brook trout	217,500	Ashton
Brook trout	50,000	Clark Fork
Subtotal	267,500	
Hybrids	804,430*	Ashton
Hybrids	948,418	Mackay
Subtotal	1,752,848	
Cutthroat	310,150	Hagerman
Cutthroat	362,500	Ashton
cutthroat	1,523,780	Mackay
Subtotal	2,196,430	
TOTAL	4,216,778	

*GREEN EGGS

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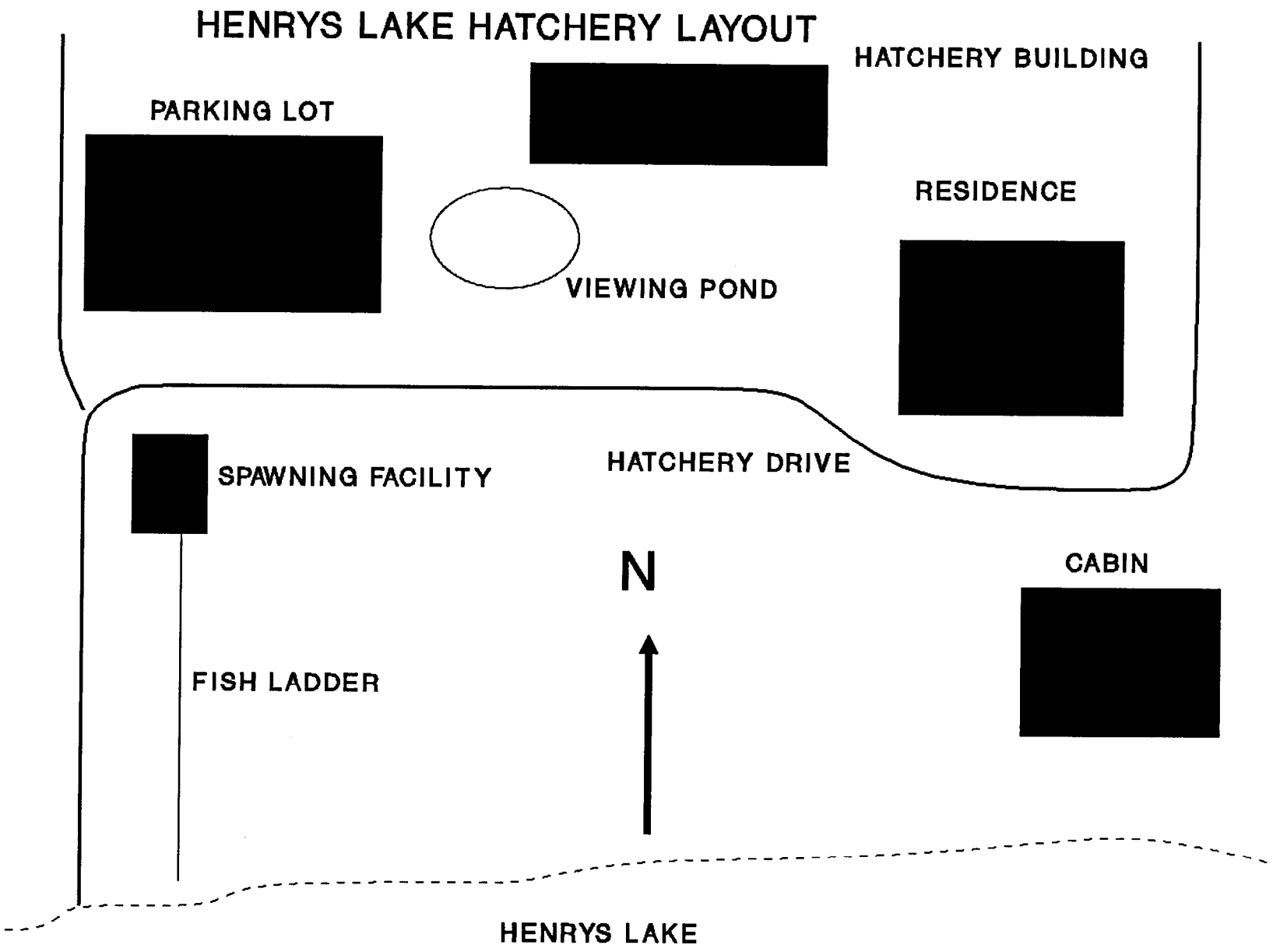

Figure 1. Hatchery layout.

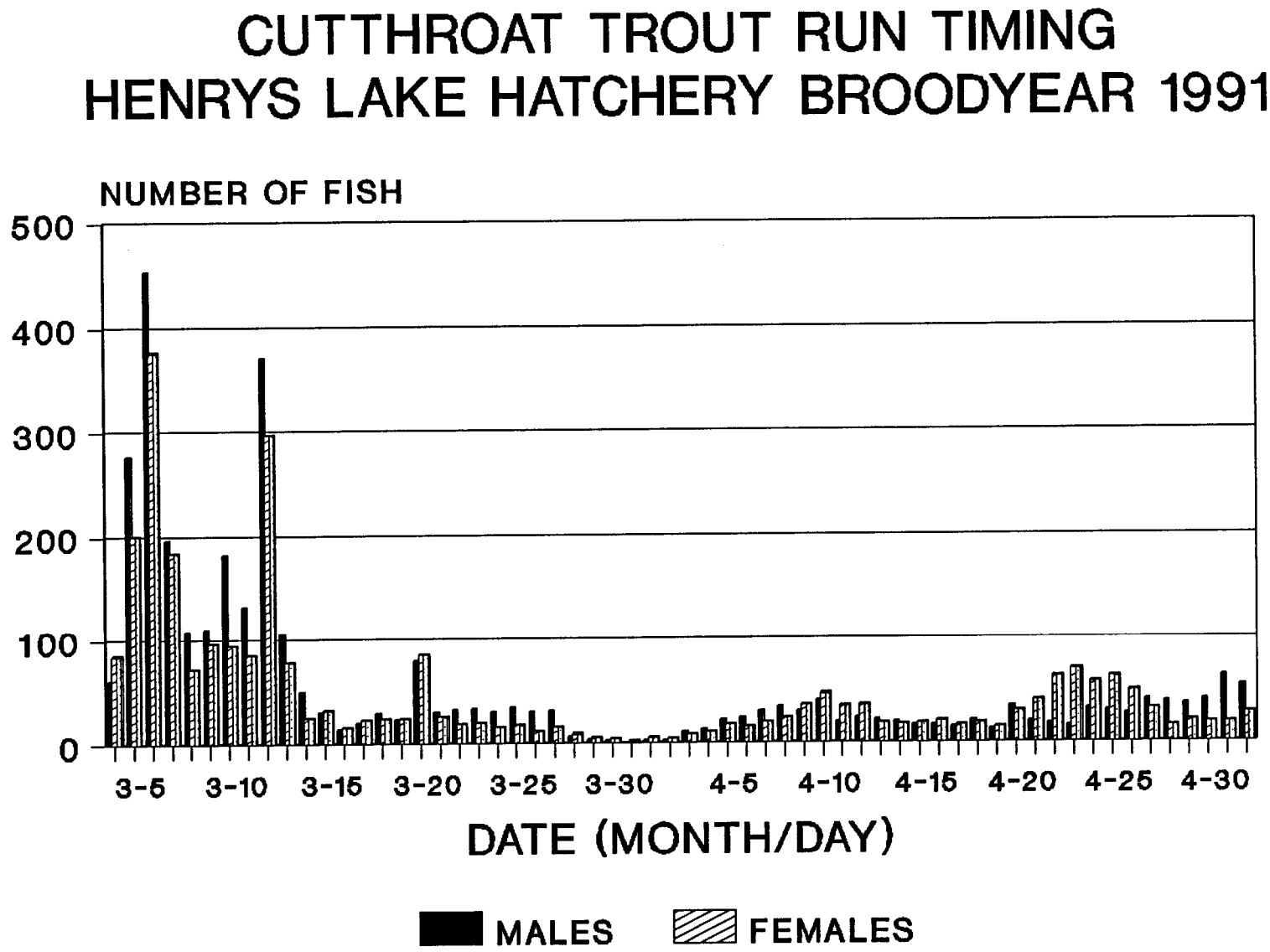

Figure 2. Cutthroat trout run timing.

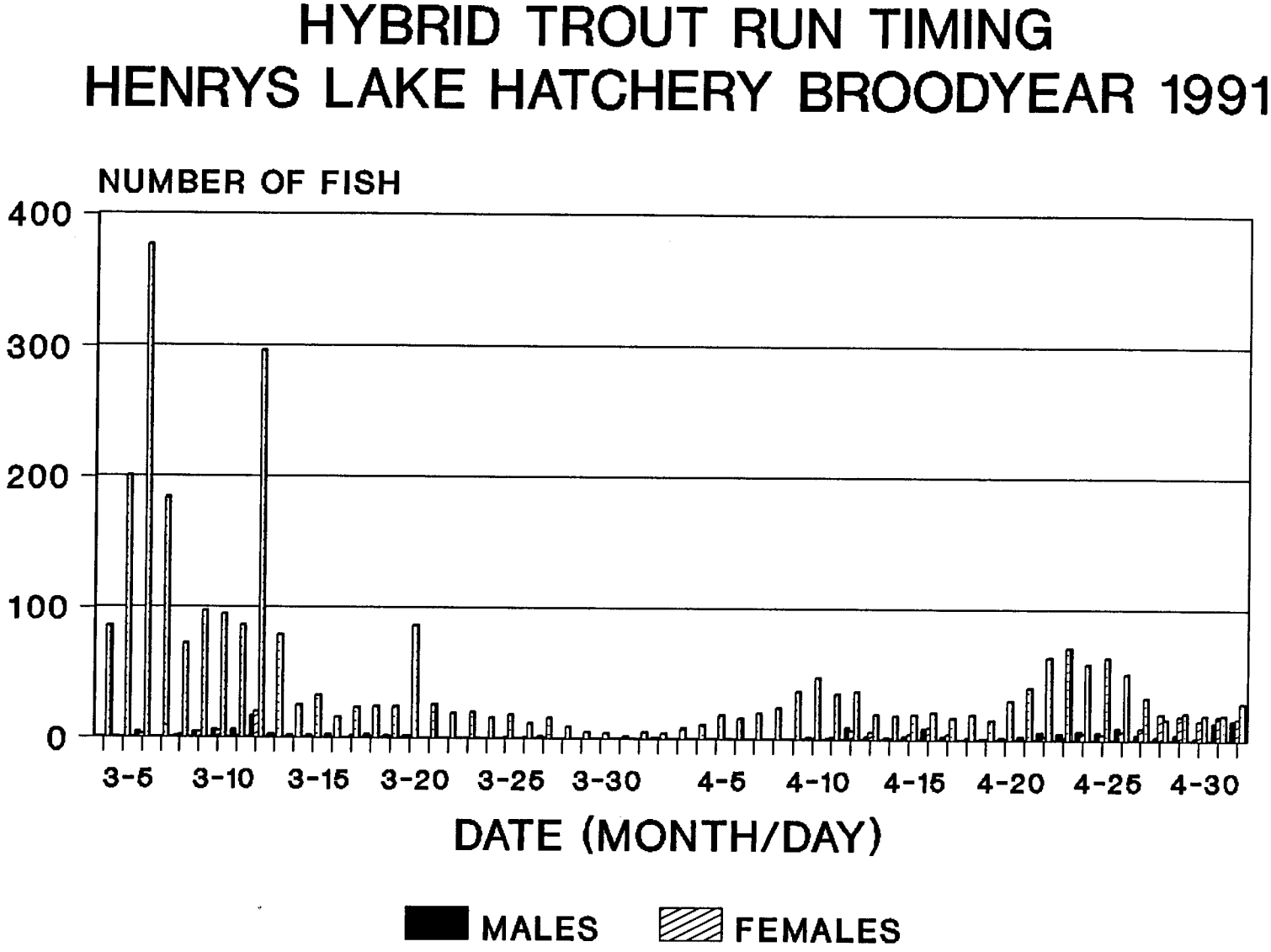

Figure 3. Hybrid trout run timing.

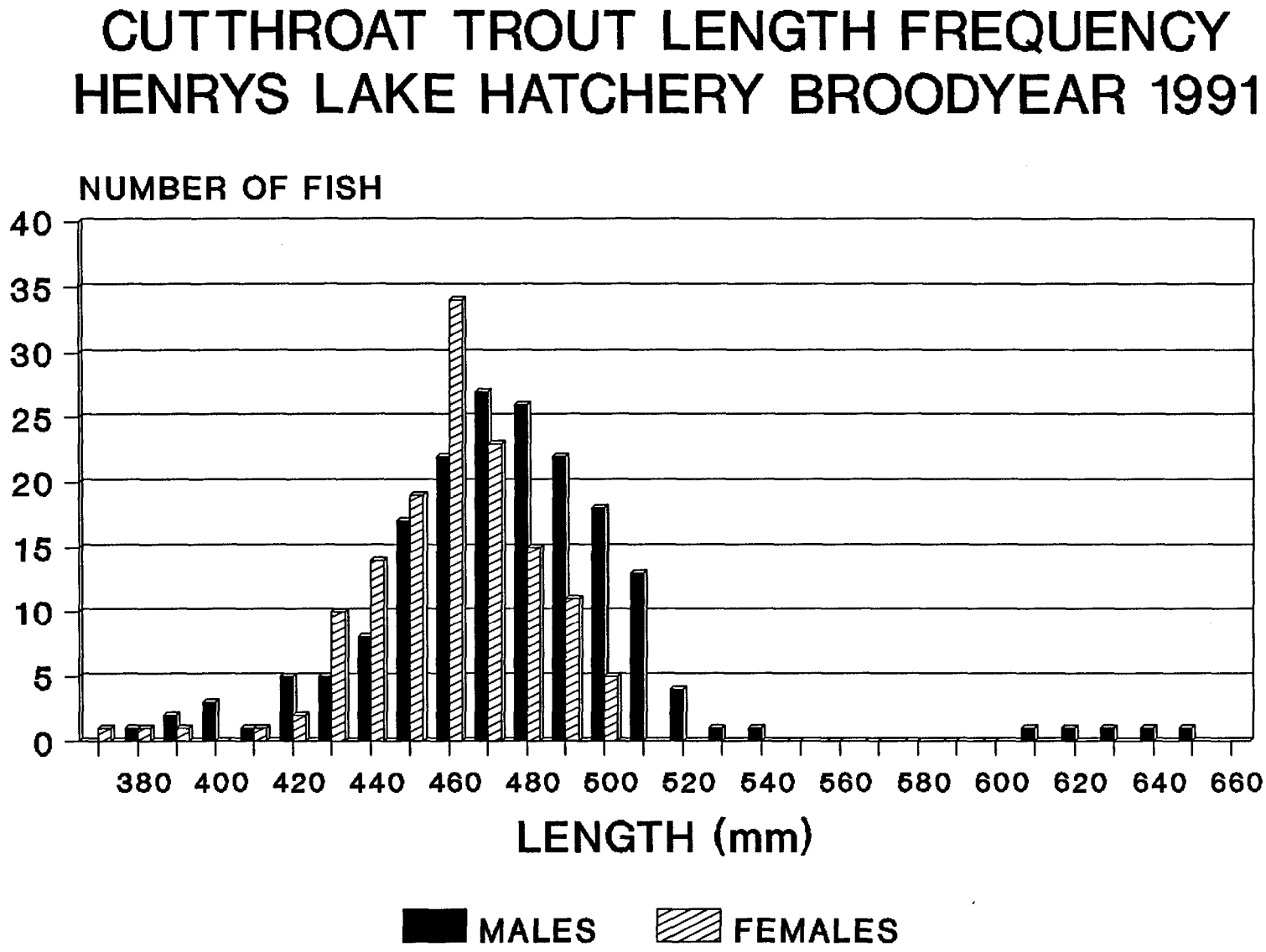

Figure 4. Broodyear 1991 cutthroat.

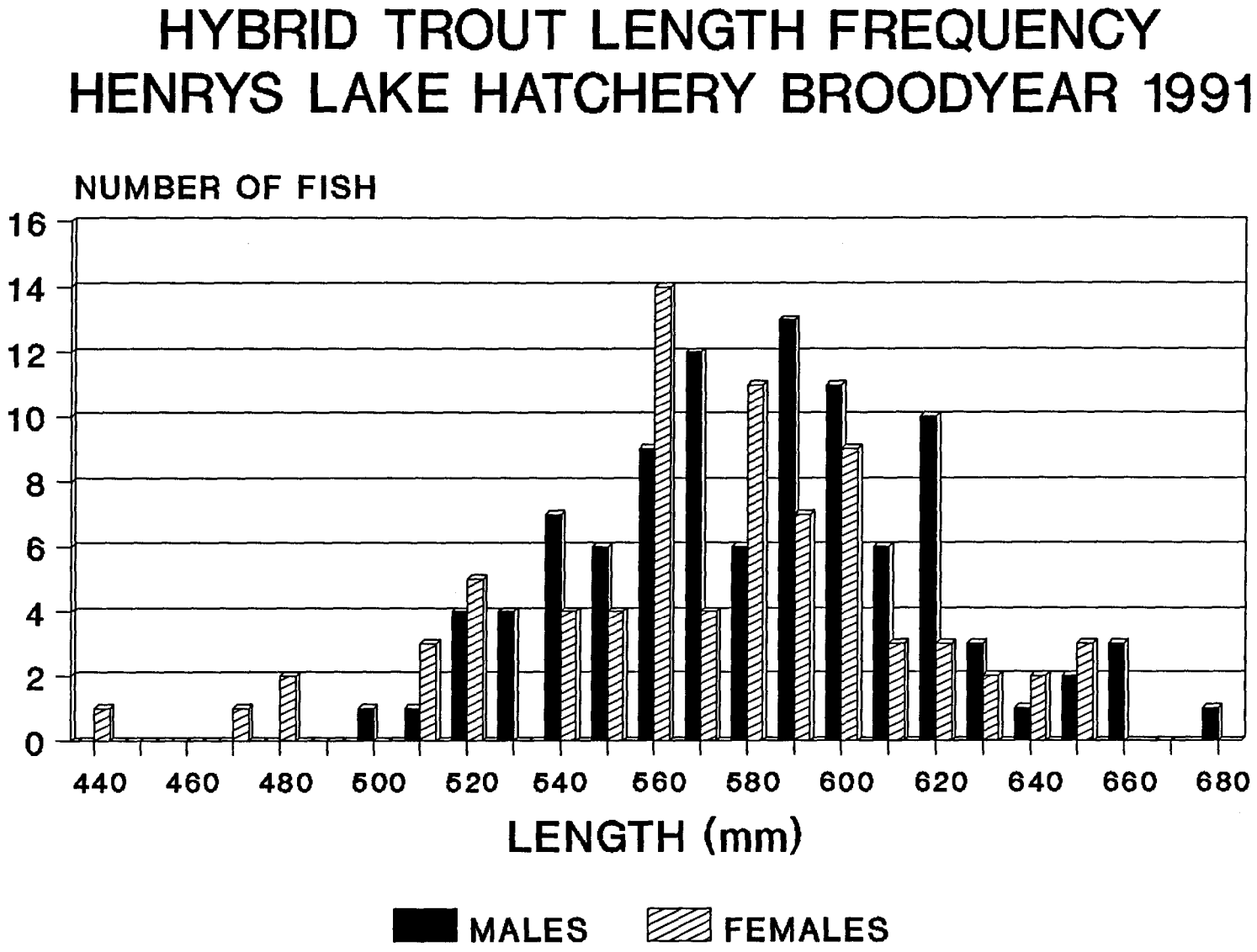

Figure 5. Broodyear 1991 hybrids.

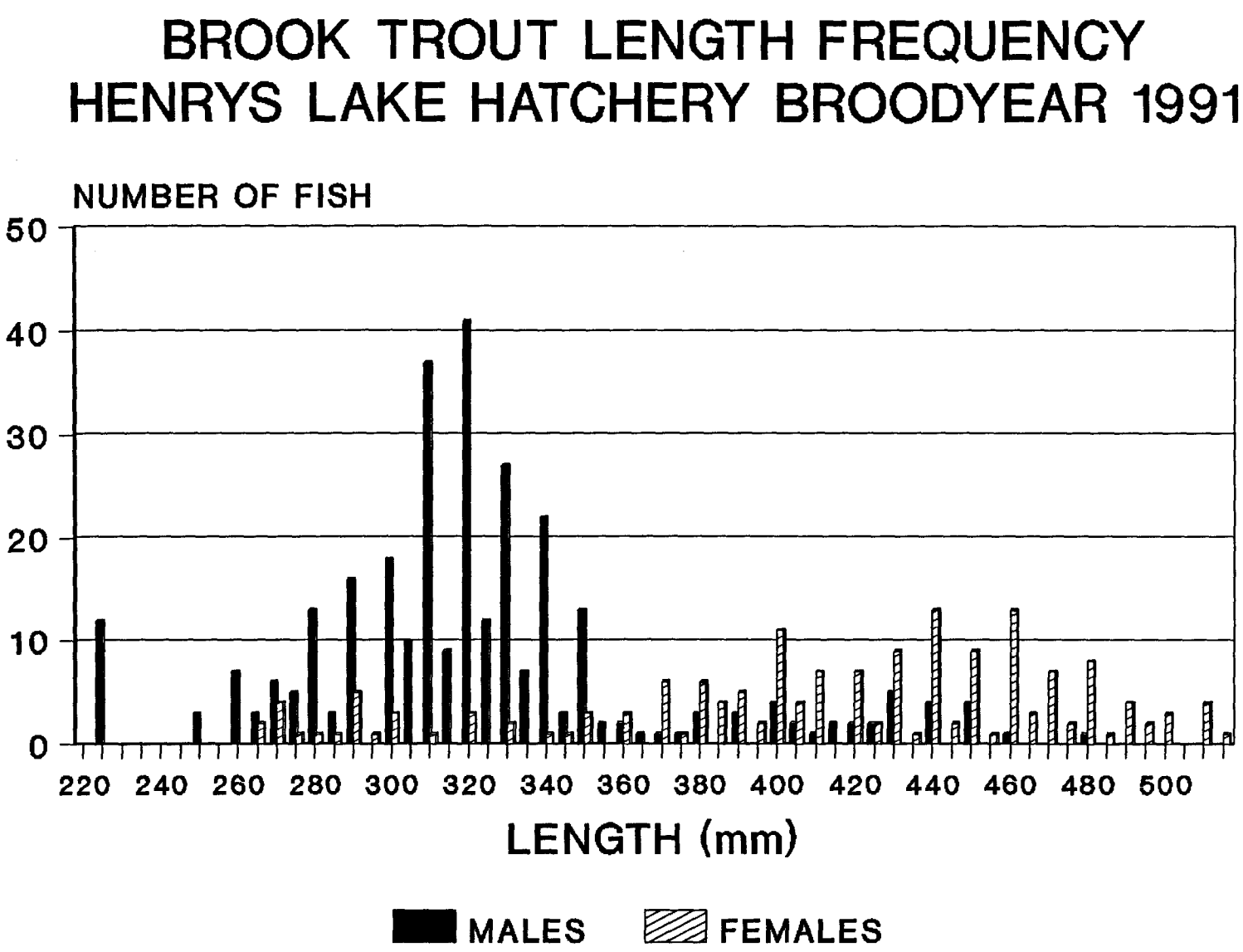

Figure 6. Broodyear 1991 brook trout.